



Norman H. Bangarter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

July 30, 1990

TO: Wayne Hedberg, Permit Supervisor

FROM: Anthony Gallegos, Reclamation Engineer *adg*

RE: Review of Revised NOI, Jumbo Mining Company, Mizpah Pit, M/027/007, Millard County, Utah

I have reviewed Jumbo's June 23, 1990 permit revision and arrived at a reclamation cost estimate (see attachment). I have the following comments:

R613-004-105. Maps, Drawings and Photographs

Acreages listed on maps R613-004-105.3.14 and 3.17 are not consistent with areas measured off these maps using the digitizer and the scale of 1" = 200'. I arrived at a total disturbed area of 18 acres including the new road, all dumps, the entire pit area, and the topsoil stockpile areas. Figures given in Jumbo's submission do not add up to their February 27, 1990 total of 21 acres. My measurements show the areas to be: North Dump 3.2 acres, South Dump 7.3 acres, Road 0.5 acre, South Pit Floor 1.5 acres, North Pit Floor 0.9 acre, Pit Walls 3.8 acres, Soil Stockpiles 0.8 acre. Dave Hartshorn of Jumbo, informed me, by phone (7/30/90), that the figure of 18 acres is correct.

A topsoil stockpile of 1400 CY, as estimated by Jumbo as salvageable, is enough to cover approximately 0.9 acre at a depth of 12 inches. Borrow areas or soil amendments may be needed to alleviate this topsoil deficiency.

R613-004-111. Reclamation Practices

The reclamation cost estimate was based on grading the waste piles and pit benches to a 3h:1v slope configuration as specified by the BLM.

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Backfilling of the pit, using the waste dump material, was evaluated as a possible reclamation option. This would eliminate the amounts in the DOGM reclamation estimate for contouring and regrading the dumps (\$4,137) and backfilling/shaping the pit benches (\$4,484). The evaluation is based on the assumption that 70% of the 300,000 tons of total mine waste go to the south dump and 30% to the north dump. The material was assumed to have a density of 2,350 lb/CY which gave a total waste volume of 255,319 CY. The average push distances for the south and north dumps were 200 ft and 300 ft, respectively. Using a bulldozer to move 25% of the material at each dump into the pit would add approximately \$36,766 to the reclamation estimate bringing the adjusted total to \$51,745. This is an increase of approximately 119% over the original DOGM estimate. Adjusting the mine design to reflect a pit backfilling plan by placing waste materials more strategically would keep the cost for backfilling at a minimum, possibly \$0.51/CY.

jb
Attachment
WMN.4/1-2

RECLAMATION ESTIMATE

Jumbo Mining Company

Drum Mine – Mizpah Pit Millard County

M/027/007 July 30, 1990

Prepared by Utah State Division of Oil, Gas & Mining

Reclamation Details

- Rip Roads, Ramps & Pit Floors to a Depth of 1.5 ft
- Contour & Regrade Waste Dumps to 3h:1v Slopes
- Backfill/Shape Pit Benches to 3h:1v Slopes
- Spread 1400 CY of Topsoil on ???
- Clean Up & Removal of Trash
- Scarify, Seed & Mulch: Dumps,Pit Floors,Roads, Soil Stockpiles
- Construct Berms Around Western Perimeter of Pit (1800 ft)

<u>Description</u>	<u>Amount</u>	<u>\$/Unit</u>	<u>Cost-\$</u>
Ripping to 1.5ft Depth	2.9 acre	1091	3,164
Contour & Regrading	10.5 acre	394	4,137
Backfill/Shape Pit Benches	3.8 acre	1180	4,484
Spread Topsoil	1,400 CY	0.68	952
Clean Up & Remove Trash	14.2 acre	47	667
Scarify, Seed & Mulch	14.2 acre	286	4,061
Construct Berms	1,800 ft	1.20	2,160
SUBTOTAL			19,626
+ 10% CONTINGENCY			1,963
SUBTOTAL			21,588
+ 5 yr ESCALATION(1.84%)			2,061
TOTAL			23,649
ROUNDED TOTAL IN 1995-\$			\$23,600